



A.D. 1874, 28th SEPTEMBER.

N^o 3324.

SPECIFICATION

OF

OWEN BOWEN AND AMBROSE MILLER.

DECOMPOSING NOXIOUS GASES.

LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

PRINTERS TO THE QUEEN'S MOST EXCELLANT MAJESTY:

PUBLISHED AT THE GREAT SEAL PATENT OFFICE,

26, SOUTHAMPTON BUILDINGS, HOLBORN.

1875.



A.D. 1874, 28th SEPTEMBER. N° 3324.

Decomposing Noxious Gases.

LETTERS PATENT to Owen Bowen, of Lombard Street, in the City of London, Civil Engineer, and Ambrose Miller, of the Coal Exchange, in the City of London, Coal Factor, for the Invention of “AN IMPROVED MODE OF OR PROCESS AND APPARATUS FOR DESTROYING OR DECOMPOSING THE NOXIOUS GASES GIVEN OFF FROM KILNS, DRYING FLOORS, AND OTHER PLACES OR MANUFACTURES.”

Sealed the 9th March 1875, and dated the 28th September 1874.

PROVISIONAL SPECIFICATION left by the said Owen Bowen and Ambrose Miller at the Office of the Commissioners of Patents, with their Petition, on the 28th September 1874.

We, OWEN BOWEN, of Lombard Street, in the City of London, Civil
5 Engineer, and AMBROSE MILLER, of the Coal Exchange, in the City of
London, Coal Factor, do hereby declare the nature of the said Invention
for “AN IMPROVED MODE OF OR PROCESS AND APPARATUS FOR DESTROYING OR
DECOMPOSING THE NOXIOUS GASES GIVEN OFF FROM KILNS, DRYING FLOORS, AND
OTHER PLACES OR MANUFACTURES,” to be as follows:—

10 The object of our Invention is to absorb, neutralize, decompose, destroy,
or otherwise render innocuous the noxious gases, vapours, or smells

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arising from various chemical manufactures or processes in the industrial arts, so as to prevent such processes or manufactures from becoming a nuisance to the surrounding neighbourhood.

As an example of our improved mode of dealing with these noxious gases or vapours we will explain our Invention as applied to a kiln for burning cement. To this end we adapt to the exit opening at the top of kiln (which may be of any suitable form or construction) a pipe or tube whereby all the gases evolved from the kiln may be carried off and conveyed to a close chamber, instead of being allowed to escape into the atmosphere as is now the case. In this close chamber is constructed a shallow tank containing water, which will absorb some of the gases evolved from the kiln. The decomposition of these gases is assisted by a jet of steam which is conveyed to the close chamber by means of a suitable pipe connected with a steam boiler placed a convenient distance away from the tank. Such of the gases as are not absorbed by the water or decomposed by the hot steam are conducted to the furnace or fire-place, where by passing over the incandescent fuel they will be burned, or at any rate deprived of their noxious odours; they may then be allowed to pass to the chimney and escape into the atmosphere without creating a nuisance.

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SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Owen Bowen and Ambrose Miller, in the Great Seal Patent Office on the 25th March 1875.

TO ALL TO WHOM THESE PRESENTS SHALL COME, we, OWEN BOWEN, of Lombard Street, in the City of London, Civil Engineer, and AMBROSE MILLER, of the Coal Exchange, in the City of London, Coal Factor, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-eighth day of September, in the year of our Lord One thousand eight hundred and seventy-four, in the thirty-eighth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto us, the said Owen Bowen and Ambrose Miller, Her special licence that we, the said Owen Bowen and Ambrose Miller, our executors, administrators, and assigns, or such others as

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we, the said Owen Bowen and Ambrose Miller, our executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend,
5 within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for “AN IMPROVED MODE OF OR PROCESS AND APPARATUS FOR DESTROYING OR DECOMPOSING THE NOXIOUS GASES GIVEN OFF FROM KILNS, DRYING FLOORS, AND OTHER PLACES OR MANUFACTURES,” upon the condition (amongst others) that we, the said Owen Bowen and
10 Ambrose Miller, our executors or administrators, by an instrument in writing under our or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months
15 next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Owen Bowen, on behalf of myself and of the said Ambrose Miller, do hereby declare the nature of our said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement,
20 reference being had to the Drawing hereunto annexed, and to the letters and figures marked thereon (that is to say):—

The object of our Invention is to absorb, neutralize, decompose, destroy, or otherwise render innocuous the noxious gases, vapours, or smells arising from various chemical manufactures or processes in the
25 industrial arts, such as the manufacture of cement and various chemical substances, the roasting of ores, or other processes in which condensable gases are evolved, the main object of the Invention being to prevent such processes or manufactures from becoming a nuisance to the surrounding neighborhood.

30 As an example of our improved mode of dealing with these noxious gases or vapours we will explain our Invention as applied to a kiln for burning cement, and in the accompanying Drawing Fig. 1 is a plan view; and Fig. 2, a longitudinal vertical section of the apparatus and appliances whereby the gases evolved from a kiln of this description are
35 dealt with.

The kiln A in which the cement is burned is of the ordinary construction, but the Invention may be adapted to any suitable kiln.

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In carrying out our Invention we adapt to the exit opening at the top of the kiln *A* (which, as before mentioned, may be of any suitable form or construction) a pipe or tube *a*, whereby all the gases evolved from the kiln *A* may be carried off and conveyed to a close chamber *b*, instead of being allowed to escape into the atmosphere as is now the case. In 5 this close chamber *b* is constructed a shallow tank *c* containing water which will absorb some of the gases evolved from the kiln. The decomposition of these gases is assisted by a jet of steam which is conveyed to the close chamber *b* by means of a suitable pipe *d* connected with a steam boiler *e* placed a convenient distance away from the tank *c*. Any convenient 10 form of boiler may be employed. In the Drawing the boiler *e* is of the waggon type, but when economy of fuel is an object a Cornish boiler would be preferable. Such of the gases as are not absorbed by the water in the tank *c* or decomposed by the hot steam in the chamber *b* are conducted to another chamber *f*, where they will pass over the 15 surface of a body of cold water contained in the tank or shallow vessel *g*, in which the water is kept constantly in motion by being fed into the vessel *g* at one end, and after being caused to travel in a serpentine direction by means of the washboards *g*¹, *g*¹, arranged as indicated by dots in the plan view Fig. 1, is ultimately discharged at the opposite 20 end, as indicated by the arrow in Fig. 1. In this way the water is kept in constant agitation and is kept cold, in which state it will more readily absorb the hot gases. Those gases which are not absorbed will be carried forward to the furnace or fire-place *h*, where by passing over the incandescent fuel they will be burned, or at any rate deprived of any 25 remaining noxious odours. The draught caused by the fire in the furnace or fire-place *h* will be sufficient to draw the gases from the top of the kiln *A* and conduct them through the apparatus to the chimney *j*. When a considerable portion of the condensable gases have been absorbed by the water in the tanks *c* and *g*, the remainder may be 30 allowed to pass to the flue *i* which will conduct them to the chimney *j*, from whence they will escape into the atmosphere, where not being of an acrid or irritating character, the uncondensed gases coming from the furnace will not create a nuisance. At the bottom of the chimney shaft *j* is another shallow water tank *k* which is provided with a series 35 of wash boards *k*¹, *k*¹, seen best in the plan view Fig. 1, and is supplied with water which flows in at one end through a suitable pipe, and out at the opposite end through another pipe. The water is by this means caused to circulate in a zig-zag or serpentine direction, and by a con-

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tinuous flow being kept up the water is maintained in constant motion, and kept cold as in the tank *g*.

Having now described our Invention of “An Improved Mode of or Process and Apparatus for Destroying or Decomposing the Noxious
5 Gases given off from Kilns, Drying Floors, and other Places or Manufactures,” and having explained the manner of carrying the same into effect, we claim as the Invention secured to us by Letters Patent as aforesaid, the adaptation to any convenient part of a kiln, oven, drying floor, furnace, or other apparatus (from which noxious gases are evolved)
10 of a close chamber or chambers provided with shallow vessels containing water, such close chambers, or some of them, being also supplied with steam which is made to commingle with the gases contained in the chambers, the whole being arranged as and for the purposes herein set forth.

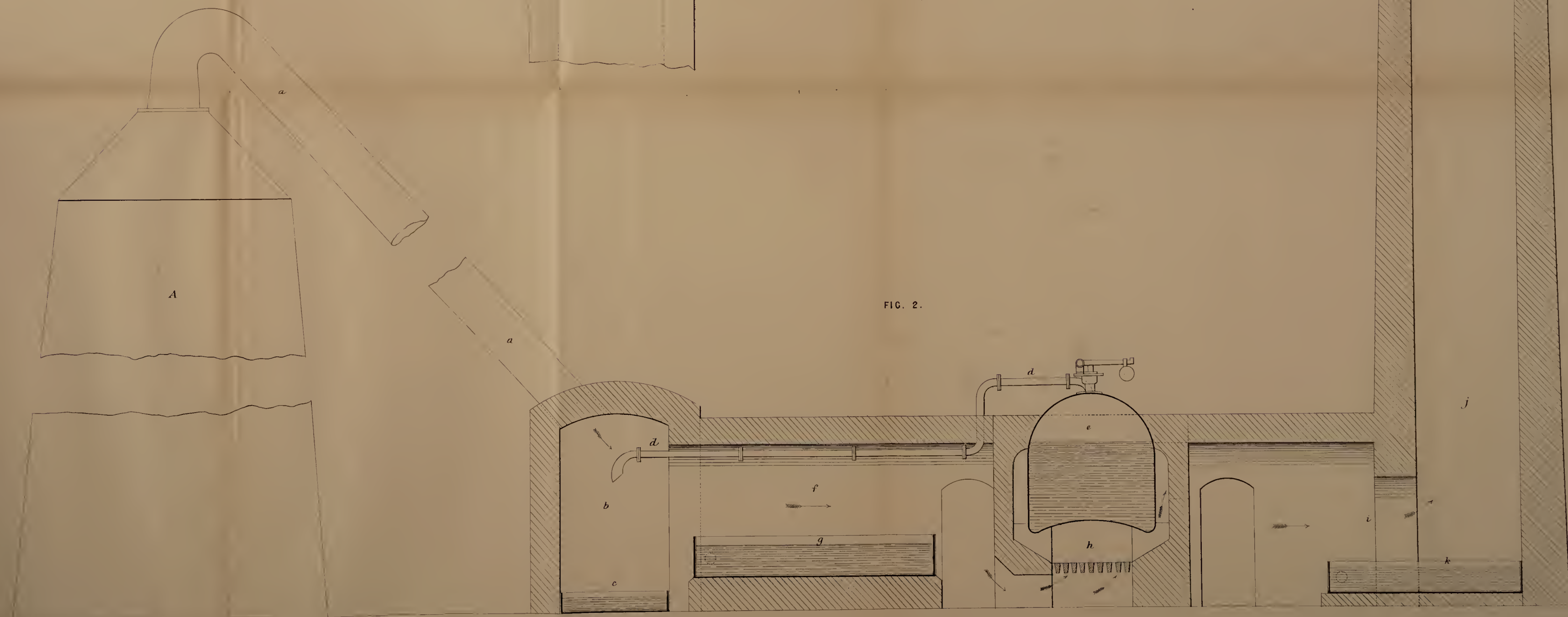
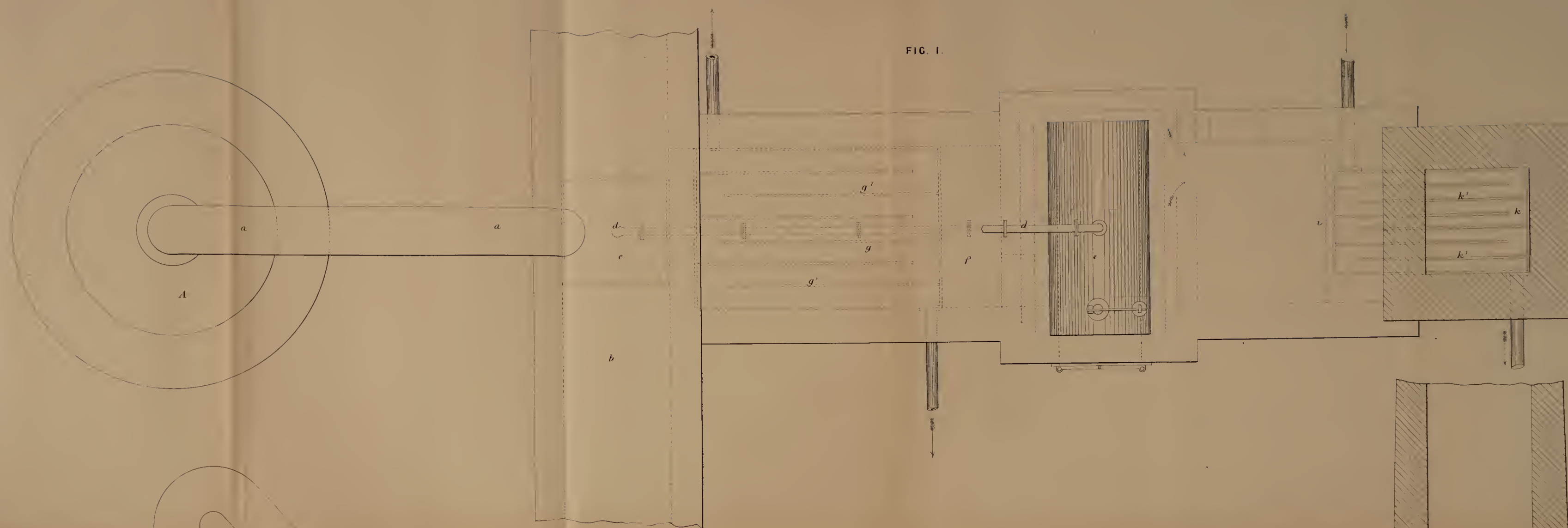
15 In witness whereof, I, the said Owen Bowen, have hereunto set my hand and seal, the Twenty-fifth day of March, in the year of our Lord One thousand eight hundred and seventy-five.

OWEN BOWEN. (L.S.)

LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1875.

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BOWEN & MILLER'S SPECIFICATION.



The filed drawing is partly colored

